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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,220	05/14/2001	Roger Sandstrom	98003-UTAP	4894

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EXAMINER
GAY, JENNIFER HAWKINS

ART UNIT	PAPER NUMBER
3672	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/806,220	Applicant(s) SANDSTROM, ROGER
	Examiner Jennifer H Gay	Art Unit 3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jansson et al. (US 4,760,887) in view of Saunders et al. (US 4,549,754).

Jansson et al. discloses a threaded connector for a percussion drilling assembly. The connector includes the following features:

- A male thread (15) located on a first drill string element (10 and 11).
- A female thread (13) located on a second drill string element (12).
- The first and second drill string elements each include respective impact surfaces (16 and 18) that are arranged to abut each other.
- The threads are characterized in that they have a crests having a radius of curvature that is greater than 30% of the pitch of the threads (43.3%, see col. 2, lines 10-20 and col. 3, lines 25-35).

Jansson et al. discloses all of the limitations of the above claims except for a conical or tapered thread. As seen in Figures 11 and 14, Saunders et al. teaches a threaded tool joint for an oil well tool that has a tapered thread. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have tapered, as taught by Saunders et al., the thread of Jansson et al. in order to have provided a tool joint that resulted in lower local stresses and reduced the susceptibility to fatigue failure (see col. 1, lines 63-66).

3. Alternately, claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jansson et al. (US 4,760,887) in view of Saunders et al. (US 4,549,754) and Eklof et al. (US 4,687,368).

Jansson et al. discloses a threaded connector for a percussion drilling assembly. The connector includes the following features:

- A male thread (15) located on a first drill string element (10 and 11).
- A female thread (13) located on a second drill string element (12).
- The first and second drill string elements each include respective impact surfaces (16 and 18) that are arranged to abut each other.
- The threads are characterized in that they have a crests having a radius of curvature that is greater than 30% of the pitch of the threads (43.3%, see col. 2, lines 10-20 and col. 3, lines 25-35).

Jansson et al. discloses all of the limitations of the above claims except for the threaded connector having a conical or tapered thread and except for the first and second drill string elements including impact surfaces that are arranged to abut each other.

As seen in Figures 11 and 14, Saunders et al. teaches a threaded tool joint for an oil well tool that has a tapered thread. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have tapered, as taught by Saunders et al., the thread of Jansson et al. in order to have provided a tool joint that resulted in lower local stresses and reduced the susceptibility to fatigue failure (see col. 1, lines 63-66).

As seen in Figure 1 and 3, Eklof et al. teaches a threaded connection for a percussion rock drill. The threaded connection includes conical male threads (13) located on a first drill string element (10) and conical female threads (12) located on a second drill string element (11). The first element includes a first impact surface (16) and the second element includes a second impact surface (15). It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the first and second impact surfaces taught by Eklof et al. on the threaded connector of Jansson et al. in order to have provided a means for limiting the degree to which the two elements were threaded together, i.e. to have ensured that the threads of the two elements were completely in contact.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson (US 4,861,209) in view of Saunders et al. (US 4,549,754).

Larsson discloses a threaded connector for a percussion drilling assembly. The connector includes the following features:

- A male thread located on a first drill string element (see Abstract).
- A female thread located on a second drill string element (see Abstract).
- The first and second drill string elements each include respective impact surfaces (see Abstract and col. 2, line 58-col. 3, line 16).
- The threads are characterized in that they have a crests having a radius of curvature that is greater than 30% of the pitch of the threads (37.7%, see col. 3, lines 17-23).

As seen in Figures 11 and 14, Saunders et al. teaches a threaded tool joint for an oil well tool that has a tapered thread. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have tapered, as taught by Saunders et al., the thread of Larsson in order to have provided a tool joint that resulted in lower local stresses and reduced the susceptibility to fatigue failure (see col. 1, lines 63-66).

5. Alternately, claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson (US 4,861,209) in view of Saunders et al. (US 4,549,754) and Eklof et al. (US 4,687,368).

Larsson discloses a threaded connector for a percussion drilling assembly. The connector includes the following features:

- A male thread located on a first drill string element (see Abstract).
- A female thread located on a second drill string element (see Abstract).
- The first and second drill string elements each include respective impact surfaces (see Abstract and col. 2, line 58-col. 3, line 16).
- The threads are characterized in that they have a crests having a radius of curvature that is greater than 30% of the pitch of the threads (37.7%, see col. 3, lines 17-23).

Larsson discloses all of the limitations of the above claims except for the threaded connector having a conical or tapered thread and except for the first and second drill string elements including impact surfaces that are arranged to abut each other.

As seen in Figures 11 and 14, Saunders et al. teaches a threaded tool joint for an oil well tool that has a tapered thread. It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have tapered, as taught by Saunders et al., the thread of Larsson in order to have provided a tool joint that resulted in lower local stresses and reduced the susceptibility to fatigue failure (see col. 1, lines 63-66).

As seen in Figure 1 and 3, Eklof et al. teaches a threaded connection for a percussion rock drill. The threaded connection includes conical male threads (13) located on a first drill string element (10) and conical female threads (12) located on a second drill string element (11). The first element includes a first impact surface (16) and the second element includes a second impact surface (15). It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the first and second impact surfaces taught by Eklof et al. on the threaded connector of Larsson in order to have provided a means for limiting the degree to which the two elements were threaded together, i.e. to have ensured that the threads of the two elements were completely in contact.

Response to Arguments

6. Applicant's arguments filed 13 January 2003 have been fully considered but they are not persuasive.

In response to applicant's argument that Jansson, Eklof, and Larsson do not teach conical threading, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The examiner acknowledges that Jansson, Eklof, and Larsson do not teach conical threads but has used Saunders to teach this feature.

In response to applicant's argument that Saunders does not teach a male thread with a radius of curvature larger than 30% of the pitch of the thread, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). The examiner acknowledges that Saunders does not teach a male thread with a radius of curvature larger than 30% of the pitch of the thread, however, this feature can be found in Jansson and Larsson.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's arguments, the recitation of a drill string for "percussive rock drilling" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). The examiner acknowledges the applicant's arguments regarding that the limitation that the drill string is for percussive drilling must be given weight, however, the examiner disagrees. Applicant has not positively recited any feature in the body of the claim that would indicated that the drill string could only be used for percussive drilling. Contrary to applicant's position that the recitation of the features of the drill string meets this requirement, the features of the drill string are not related to percussive drilling. The examiner would also like to note that all of the references except for Saunders are drawn towards percussive drilling.

In response to applicant's argument that Saunders is used for rotary drilling not percussive drilling thus is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular

problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, all of the cited references teach threaded couplings, Saunders included, that are for use in drill strings. The mere fact that Saunders is used for rotary drill instead of percussive drilling does not indicate that the reference is not analogous art.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the references can be found in column 1, lines 63-66 of Saunders. Further, rotary drilling and percussive drilling, though different, are not so different that features of one could not be used on the other.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H Gay whose telephone number is (703) 308-2881. The examiner can normally be reached on Monday-Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (703) 308-2151. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and (703) 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

JHG
February 10, 2003

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